

Claims

What is claimed is:

- 5        1. An aqueous mixture comprising:  
            1000 parts by weight water;  
            at least about 5 parts by weight of water soluble, hydroxyl group bearing polymer;  
            the aqueous mixture having viscosity less than about 500 centipoise and, when  
            allowed to dry, forms a substantially insoluble crosslinked polymer.
- 10        2. The aqueous mixture of claim 1 further comprising:  
            at least one crosslinking agent.
- 15        3. A kit that when mixed with water creates the aqueous mixture of claim 2  
            comprising:  
            a dry composition including the water soluble, hydroxyl group bearing polymer;  
            and  
            a liquid composition including the at least one crosslinking agent.
- 20        4. The aqueous mixture of claim 2 wherein the at least one crosslinking agent  
            includes a sodium zirconium lactate crosslinking agent.
- 25        5. The aqueous mixture of claim 2 wherein the at least one crosslinking agent  
            includes glyoxal.
6. The aqueous mixture of claim 1 having a viscosity less than about 200 centipoise  
            and comprising:  
                at least about 10 parts by weight water soluble hydroxyl group bearing polymer.
- 30        7. The aqueous mixture of claim 1 having a viscosity less than about 200 centipoise  
            and comprising:  
                at least about 15 parts by weight water soluble hydroxyl group bearing polymer.

8. The aqueous mixture of claim 1 wherein the water soluble, hydroxyl group bearing polymer has been previously depolymerized.

5 9. An aqueous mixture for hydraulic application to an aggregate surface that, when allowed to dry, forms a substantially water insoluble, crosslinked polymer on the aggregate surface, the aqueous mixture comprising:

1000 parts by weight water;  
at least about 5 parts by weight water soluble, hydroxyl group bearing polymer;  
at least one crosslinking agent; and  
the aqueous mixture having viscosity less than about 500 centipoise.

15 10. A kit that when mixed with water creates the aqueous mixture of claim 9 comprising:

a dry composition including the water soluble, hydroxyl group bearing polymer;  
and  
a liquid composition including the at least one crosslinking agent, wherein the liquid composition must be mixed with the water prior to mixing the dry composition with the water.

20 11. The aqueous mixture of claim 9 wherein the at least one crosslinking agent consists of one or more of the group of crosslinking agents consisting of a sodium zirconium lactate crosslinking agent, a glyoxal crosslinking agent, a cationic amine polymer-epichlorohydrin adduct crosslinking agent, and a titanium chelate crosslinking agent.

25 12. The aqueous mixture of claim 9 having a viscosity less than about 200 centipoise and further comprising:

at least about 10 parts by weight water soluble hydroxyl group bearing polymer.

30 13. The aqueous mixture of claim 9 having a viscosity less than about 200 centipoise and further comprising:

at least about 15 parts by weight water soluble hydroxyl group bearing polymer.

14. The aqueous mixture of claim 9 wherein the water soluble, hydroxyl group bearing polymer comprises:

a previously depolymerized water soluble, hydroxyl group bearing polymer.

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15. A method for stabilizing an aggregate surface comprising:  
providing 1000 parts by weight water;  
mixing into the water at least one crosslinking agent;  
after mixing the crosslinking agent into the water, mixing into the water at least 5  
10 parts by weight of a hydroxyl group bearing polymer to create an aqueous mixture of  
crosslinking agent and polymer having a viscosity less than about 500 centipoise;  
applying the aqueous mixture to the aggregate surface; and  
allowing the aqueous mixture to dry and form a substantially water insoluble,  
crosslinked polymer material that stabilizes the surface.

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16. The method of claim 15 further comprising:  
after mixing the polymer into the water, mixing into the water about 50 to 70 parts  
by weight of a fiber constituent.

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17. The method of claim 15 wherein the mixing of polymer further comprises:  
after mixing the crosslinking agent into the water, mixing into the water at least  
about 10 parts by weight of the hydroxyl group bearing polymer.

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18. The method of claim 15 wherein the aqueous mixture has a viscosity less than  
about 200 centipoise.

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19. A hydroxyl group bearing polymer crosslinking mixture comprising:  
glyoxal; and  
a heavy metal based crosslinking agent;  
wherein a weight ratio of glyoxal to the heavy metal based crosslinking agent is  
about 0.1 to about 1.5.

20. The crosslinking mixture of claim 19 wherein the weight ratio of glyoxal to the heavy metal based crosslinking agent is about 0.4 to about 0.6.

21. The crosslinking mixture of claim 19 wherein the crosslinking agent is an organic  
5 zirconate.

22. The crosslinking mixture of claim 19 wherein the heavy metal based crosslinking agent includes more than one heavy metal based crosslinking agent.